

Shg April 5

Work Order ID 81401

81401

Page 2

March-14-12 7:48:06 AM

Item ID: D350-636-016

Accept

N9000040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Skidtube STD w/ Training Wearplates, RH

Start Date: 13/03/2012 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 27/03/2012 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

110

0.00

110

Skidtubes

Skidtubes

Memo

0.00

Skidtubes

1- Pick D2600-3 Bent

2- Deburr FWD and AFT ends, remove bending marks. Scribe batch# inside AFT end per dwg D4168

3- Drill pilot holes for blade fitting bolt holes using DT8983. Open to 0.500", deburr, section R-R

4- Locate DT8329 off of blade fitting bolt holes and drill pilot holes for blade fitting, section R-R

5- Drill fwd step holes using DT9616. Ensure proper positioning. All holes as per dwg D4168 Detail J

6- Drill pilot holes as per Dwg D4168 sheet 5 (D4168-2 details). Drill using drill Jig DT8150 & DT8863A for first side only DT8863B for second side (detail K)

7- Clecko DT8863B on second side of tube and drill pilot holes for detail K. ***SECOND SIDE***

8-Drill most FWD wearplate hole using DT9678 locating of 66.54" hole

9-Open up holes of Detail J to 0.297" (total of 2 holes per side) +.201 iplace per side and open holes of detail M section R-R to 0.500" as per dwg D4168

10-Weld D2744 Cap as per Dwg D4168 and QSI 004. Fill grooves in bend left from bending as per QSI 004

A/R Aluminum Rod batch: M20164 BE 12/03/22

12/03/22

H-110

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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11-Grind welds flush as per Dwg D4168

120

QC10- Inspect visual per QSI004- ground welds

0.00

120

QC

Memo

0.00

Quality Control

130

QC5- Inspect part completeness to step on W/O

0.00

130

QC

Memo

0.00

Quality Control

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1

Cust Item ID:

Required Date: 27/03/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

140

Chemical Conversion Coat per QSI005 4.1

0.00

140

HandFinish

Memo

0.00

Hand Finishing

NG 12-3-27

150

~~QC3~~ Inspect Part Finish

0.00

150

QC

QC7
Memo

0.00

Quality Control

1 0 BE 12-03-27

PTD →

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
12/03/27	150	SHOULD BE QCF	BE	12/03/27			

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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80865

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Date:

Tooling:

Date:

Run Start *NR1*

QC:

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

160

0.00

160

Skidtubes

0.00

Skidtubes

Memo

1-Open up holes of Detail L and ground handling to 0.625" (total of 8 holes per side)
as per dwg D4168.

2-Open up holes of Detail K to 0.750" (total of 4 holes per side)
as per dwg D4168.

3- Open float hole to 0.500" (4 per side)

4-Chamfer holes of Detail K,L, ground handling and float holes per dwg D4168
(welding instructions on sheet 9)

5-Deburr and blow out all chips from inside of tube

6- Prepare tube for welding, remove alodine as required.

7-Bond web D2739 in place as per QSI 015

A/R Sikaflex-291

batch: 120813

exp. date: 2012/08/13

8- Weld spacers D3490-1, D3490-3 and D2743 as per dwg D4168 & QSI004
(welding instructions on sheet 8)

A/R Aluminum Rod batch: m120164

9- At section AP-AP drill out x-bolt spacer to 0.404"

10-Grind welds flush as per Dwg D4168

BB 12/03/27

BB 12/03/29

BB 12/03/29

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Run Start ***NR1***

QC: Date: SPC (Y/N): Date:

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp11-Spot face ground handling holes section (total of 4 places per side) as per
dwg D4168

BB 12/03/29

12- C'bore section CH-CH

DP 12-4-4

13- Deburr holes

No

BB 12/03/29

***** FOR DELUXE SKIDTUBE IF APPLICABLE DRILL TOW RING
HOLE IN TUBE *****

170

QC10- Inspect visual per QSI004- ground welds

0.00

170

QC

Memo

0.00

Quality Control

S. Z. Olay

180

QC5- Inspect part completeness to step on W/O

0.00

180

QC

Memo

0.00

Quality Control

S. Z. Olay

K

W/O:		WORK ORDER CHANGES					
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Stop *NR2*

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--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

190	Pressure Wash per QSI005 4.3	0.00							
190									
HandFinish	Memo	0.00							
Hand Finishing	Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch.								

IXP M/L 12/04/04

200	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum	0.00							
-----	--	------	--	--	--	--	--	--	--

200									
Powdercoat	Memo	0.00							
Powder Coating	START TIME: 2h30 OVEN TEMPERATURE: 320°F FINISH TIME: 3h00								

M120222

1 8 12/04/04

210	QC3- Inspect Part Finish	0.00							
-----	--------------------------	------	--	--	--	--	--	--	--

210									
QC	Memo	0.00							
Quality Control	Inspect for foreign object per QSI 024								

1 6 12/04/05

W/O:		WORK ORDER CHANGES					
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Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

220

0.00

220

HandFinishing

HandFinish

Memo

0.00

Hand Finishing

✓ 1- Install inserts as per Dwg D4168

1 RH of all 1104105

230

0.00

230

HandFinishing

HandFinish

Memo

0.00

Hand Finishing

✓ 1-Inspect for Foreign Objects

2-Spray inside of tube with "LPS-3" batch: N/A

3-Install blade fitting D3488-041, wearshoes and ground handling hardware as per dwg D4168

SIKA FLEX 241

BATCH: 11170318

EXP DATE: 12/02

4-assemble o'ring to plug as per dwg D3492 and apply o'ring lube

A/R 55-o'ring lube batch: 11110318

5-Coat all exposed fasteners with "LPS Procyon" batch: 1114596

1 RH of all 1104109

W/O:		WORK ORDER CHANGES					
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Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
240	QC5- Inspect part completeness to step on W/O	0.00							
240									
QC	Memo	0.00							
Quality Control									
250	Pick Kit	0.00							
250									
Packaging	Memo	0.00							
Packaging	If making a D350-636-216 pick kit will only requires: 1 X AN3C37A 1 X AN3C34A 1 X AN3C42A 2 X D3493-1								
260	QC4- 100% Inspect kits for completeness	0.00							
260									
QC	Memo	0.00							
Quality Control	*****ensure antiseize is on AN8C21A bolts*****								

Siz/ku/ps

(X) SP12-04-09

Siz/ku/ps

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Start Date: 13/03/2012 Start Qty: 1.00

1

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Required Date: 27/03/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
270	Packaging	0.00							
270									
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPPD350-636-016								
	Location: _____								
	PPP rev: _____ <i>SHIP</i>								
280	QC21- Final Inspection - Work Order Release	0.00							
280									
QC	Memo	0.00							
Quality Control									

*11/4/9 @**OK 12/4/9**MF**12-04-09*

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Picklist Print

Page 1

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Parent Item: D350-636-016

D350-636-016

Parent Item Name: Skidtube STD w/ Training Wearplates, RH

Start Date: 13/03/2012

Required Date: 27/03/2012

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP rev:A 10.09.28 new issue DD verf:EC
11.04.14 ecn11-553 DD verf:EC
per NCR 11-906 DD verf:EC

IPP Rev:B
IPP Rev:C 11.10.18 as

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D3490-1		Manufactured	No			160	Each	49.0000	4	4			
---------	--	--------------	----	--	--	-----	------	---------	---	---	--	--	--

D3490-1

Cross Bolt Spacer

Location

Loc Qty

Loc Code

LG001

49

62450

2

74875

4

77042

3

78793

40

D3490-3		Manufactured	No			160	Each	38.0000	4	4			
---------	--	--------------	----	--	--	-----	------	---------	---	---	--	--	--

D3490-3

Cross Bolt Spacer

Location

Loc Qty

Loc Code

LG001

38

78800

38

AN3C34A		Purchased	No			230	Each	51.0000	1	1			
---------	--	-----------	----	--	--	-----	------	---------	---	---	--	--	--

AN3C34A

BOLT

Location

Loc Qty

Loc Code

ST353

51

116075

31

117514

20

**

**

**

BE 12/03/28
BB1976 #4

BE 12/03/28
BB206 #4

ul n/05/05

XI

14

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Start Date: 13/03/2012

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Start Qty: 1.00

Required Qty: 1.00

AN3C36A

Purchased

No

230

Each

158.0000

4

4

AN3C36A

BOLT

**

ul 11/04/05

Location

Loc Qty

Loc Code

FG

4

101261

4

ST353

154

116590

0

119083

2

119324

57

120641

40

121013

55

AN3C37A

Purchased

No

230

Each

110.0000

1

1

AN3C37A

BOLT

**

sep 12-04-09

Location

Loc Qty

Loc Code

ST354

110

116874

11

117010

2

120422

47

120731

50

AN3C42A

Purchased

No

230

Each

43.0000

1

1

AN3C42A

BOLT

**

sep 12-04-09

Location

Loc Qty

Loc Code

ST354

43

106176

1

118131

2

119673

15

120464

25

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Shop Packet Print

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Start Date: 13/03/2012

Required Date: 27/03/2012

Start Qty: 1.00

Required Qty: 1.00

D3488-042

Manufactured No

230 Each

19.0000

1

1

D3488-042

Blade Fitting Assembly, RH

**

all 12/04/05

Location

Loc Qty

Loc Code

FP002

19

62003

1

75068

9

77015

9

✓

D3492-1

Manufactured No

230 Each

130.0000

8

8

D3492-1

Plug

**

all 12/04/05

Location

Loc Qty

Loc Code

FP002

130

69531

8

74444

2

76235

20

77037

100

✓

D3492-3

Manufactured No

230 Each

69.0000

8

8

D3492-3

Plug

**

all 11/04/09

Location

Loc Qty

Loc Code

FP-A

69

78600

69

B81967

✓

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Start Date: 13/03/2012

Required Date: 27/03/2012

Start Qty: 1.00

Required Qty: 1.00

D3873-1 Manufactured No

230 Each

228.0000 7 7

D3873-1

Bushing

**

B76791(47) 11/10/05

Location

Loc Qty

Loc Code

ST057

182

79561

182

ST067

46

64760

1

68247

4

73829

19

73830

2

79560

20

D4154-041

Manufactured No

230 Each

2.0000 1 1

D4154-041

Wearplate Assembly

**

11/04/05

Location

Loc Qty

Loc Code

FG

2

77007

2

D4170-1

Manufactured No

230 Each

13.0000 4 4

D4170-1

Bushing

**

BE 12/03/08

Location

Loc Qty

Loc Code

LG001

13

71844

5

76677

8

D4171-1

Manufactured No

230 Each

9.0000 1 1

D4171-1

Bushing

**

11/04/05

Location

Loc Qty

Loc Code

ST135

9

77008

9

March-14-12 7:48:10 AM

Shop Packet Print

Page 4

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

March-14-12 7:48:10 AM

Work Order ID: 81401

81401

Parent Item: D350-636-016

D350-636-016

Parent Item Name: Skidtube STD w/ Training Wearplates, RH

Start Date: 13/03/2012

Required Date: 27/03/2012

Start Qty: 1.00

Required Qty: 1.00

MS21043-3

Purchased

No

230

Each

840.0000

4

4

MS21043-3

Nut

**

u 12/04/05

Location

Loc Qty

Loc Code

FG

72

103691

72

GA

334

120693

334

ST301

434

118077

2

118614

382

118686

30

119758

20

xcl

NAS1149C0363R

Purchased

No

230

Each

3,381.000

9

9

NAS1149C0363R

Washer

**

u 12/04/05

Location

Loc Qty

Loc Code

ST297

3381

114742

3381

x9

NAS1515H3L

Purchased

No

230

Each

184.0000

4

4

*NAS1515H3I *

WASHER

**

u 12/04/05

Location

Loc Qty

Loc Code

FG

40

102472

40

ST277

144

118686

3

119438

1

120072

40

120360

100

xcl

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

March-14-12 7:48:10 AM

Page 6

Work Order ID: 81401

81401

Parent Item: D350-636-016

D350-636-016

Parent Item Name: Skidtube STD w/ Training Wearplates, RH

Start Date: 13/03/2012

Required Date: 27/03/2012

Start Qty: 1.00

Required Qty: 1.00

NAS1611-010

Purchased

No

230

Each

209.0000

8

8

NAS1611-010

O-RING

**

11121166 (x8) 11/12/04/08

Location	Loc Qty	Loc Code
FP	50	
110915	0	
120770	50	
FP001	159	
110915	14	
117460	8	
118077	1	
118612	3	
119438	47	
120308	36	
120986	50	

NAS1611-013

Purchased

No

230

Each

168.0000

8

8

NAS1611-013

O-RING

**

11121166 (x8) 11/12/04/09

Location	Loc Qty	Loc Code
FP001	168	
116582	5	
117291	2	
117887	53	
119623	36	
120360	22	
120910	50	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

March-14-12 7:48:10 AM

Work Order ID: 81401

81401

Parent Item: D350-636-016

D350-636-016

Parent Item Name: Skidtube STD w/ Training Wearplates, RH

Start Date: 13/03/2012

Required Date: 27/03/2012

Start Qty: 1.00

Required Qty: 1.00

NAS1149D0863J

Purchased

No

250

Each

231.0000

2

2

NAS1149D0863.J

WASHER

**

SP 2-04-09

Location

Loc Qty

Loc Code

ST298

231

118078

36

119307

95

120308

100

2X

D2744

Manufactured

No

110

Each

60.0000

1

1

D2744

Cap

**

BE 2/03/04

Location

Loc Qty

Loc Code

LG002

60

62715

1

70881

10

71861

7

78900

42

1

D2600-3-BENT

Manufactured

No

110

Each

25.0000

1

1

D2600-3-BENT

Extrusion Bent

**

1 12/04/09

Location

Loc Qty

Loc Code

LG

25

66875

7

73253

1

75021

1

75022

1

75023

1

81330

14

82347

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

March-14-12 7:48:10 AM

Page 8

Work Order ID: 81401

81401

Parent Item: D350-636-016

D350-636-016

Parent Item Name: Skidtube STD w/ Training Wearplates, RH

Start Date: 13/03/2012

Required Date: 27/03/2012

Start Qty: 1.00

Required Qty: 1.00

D2743

Manufactured No

160

Each

248.0000

8

8

D2743

Crossbolt Spacer

**

BE 12/03/28

Location

Loc Qty

Loc Code

LG001

248

67766

4

68251

3

73403

64

74445

1

78603

76

79517

100

8

D2739

Manufactured No

160

Each

8.0000

1

1

D2739

350 I Beam

**

12/03/27

Location

Loc Qty

Loc Code

LG

8

72155

1

80083

7

ALS4-1032-225

Purchased No

230

Each

1,134.000

4

4

ALS4-1032-225

Insert

**

12/04/05

Location

Loc Qty

Loc Code

ST281

1021

108696

146

110768

62

118386

55

118966

68

120671

690

ST282

113

120410

100

120451

13

X4

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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Picklist Print

March-14-12 7:48:10 AM

Work Order ID: 81401

81401

Parent Item: D350-636-016

D350-636-016

Parent Item Name: Skidtube STD w/ Training Wearplates, RH

Start Date: 13/03/2012

Required Date: 27/03/2012

Start Qty: 1.00

Required Qty: 1.00

AN8C35A

Purchased

No

230

Each

65.0000

1

1

AN8C35A

BOLT

**

12/04/05

Location

Loc Qty

Loc Code

FP002

64

115960

1

117834

10

118286

53

ST346

1

114442

0

115188

0

115960

1

AN6C44A

Purchased

No

230

Each

107.0000

4

4

AN6C44A

BOLT

**

12/04/05

Location

Loc Qty

Loc Code

FG

2

103964

2

ST343

105

120095

12

120143

25

120465

27

120641

21

121013

20

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

March-14-12 7:48:10 AM

Page 10

Work Order ID: 81401

81401

Parent Item: D350-636-016

D350-636-016

Parent Item Name: Skidtube STD w/ Training Wearplates, RH

Start Date: 13/03/2012

Required Date: 27/03/2012

Start Qty: 1.00

Required Qty: 1.00

MS21083C8

Purchased

No

230

Each

85.0000

1

1

MS21083C8

NUT

**

12/04/05

Location

Loc Qty

Loc Code

FP002

1

115884

1

ST303

14

115884

0

118077

1

119309

2

119436

9

119638

2

ST304

70

120142

20

120731

25

121011

25

x1

D3631-1

Manufactured

No

230

Each

223.0000

8

8

D3631-1

Washer

**

12/04/05

Location

Loc Qty

Loc Code

ST072

223

68062

2

75548

221

x4

AN960C10L

NAS1149C0332

Purchased

No

230

Each

0.0000

4

4

*AN960C10L *

washer

**

11/21/255(x4) 12/04/05

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

March-14-12 7:48:10 AM

Work Order ID: 81401

81401

Parent Item: D350-636-016

D350-636-016

Parent Item Name: Skidtube STD w/ Training Wearplates, RH

Start Date: 13/03/2012

Required Date: 27/03/2012

Start Qty: 1.00

Required Qty: 1.00

D2745

Manufactured No

230

Each

136.0000

8

8

D2745

Bushing

**

u 11/01/03

Location

Loc Qty

Loc Code

FP

100

79518

100

FP001

36

69529

1

76142

1

78597

34

NAS1149C0832R

Purchased

No

230

Each

304.0000

1

1

NAS1149C0832R

WASHER

**

u 11/01/03

Location

Loc Qty

Loc Code

ST297

304

114915

304

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

March-14-12 7:48:10 AM

Work Order ID: 81401

81401

Parent Item: D350-636-016

D350-636-016

Parent Item Name: Skidtube STD w/ Training Wearplates, RH

Start Date: 13/03/2012

Required Date: 27/03/2012

Start Qty: 1.00

Required Qty: 1.00

AN3C6A

Purchased

No

230

Each

623.0000

4

4

AN3C6A

BOLT

**

ju 12/01/05

Location

Loc Qty

Loc Code

FP001

1

111982

1

ST351

622

111982

2

116419

23

116549

2

116704

12

117619

10

117688

1

117872

5

118422

13

119449

21

120423

133

120693

400

ju

MS21043-6

Purchased

No

230

Each

809.0000

4

4

MS21043-6

NUT

**

ju 12/01/05

Location

Loc Qty

Loc Code

FG

20

103693

20

ST301

789

112314

83

117887

6

118384

200

120308

500

ju

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

March-14-12 7:48:10 AM

Work Order ID: 81401

81401

Parent Item: D350-636-016

D350-636-016

Parent Item Name: Skidtube STD w/ Training Wearplates, RH

Start Date: 13/03/2012

Required Date: 27/03/2012

Start Qty: 1.00

Required Qty: 1.00

D3493-1

Manufactured No

250

Each

66.0000

2

2

D3493-1

Washer

**

SP

Location

Loc Qty

Loc Code

ST050

66

70697

2

77573

24

78835

40

2X

MS21083C8

Purchased

No

250

Each

85.0000

2

2

MS21083C8

NUT

**

SP

Location

Loc Qty

Loc Code

FP002

1

115884

1

ST303

14

115884

0

118077

1

119309

2

119436

9

119638

2

ST304

70

120142

20

120731

25

121011

25

2X

AN8C21A

Purchased

No

250

Each

51.0000

2

2

AN8C21A

BOLT

**

SP 12-04-09.

Location

Loc Qty

Loc Code

ST343

51

118758

5

120094

42

120872

4

2X

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

Page 14

March-14-12 7:48:10 AM

Work Order ID: 81401

81401

Parent Item: D350-636-016

D350-636-016

Parent Item Name: Skidtube STD w/ Training Wearplates, RH

Start Date: 13/03/2012

Required Date: 27/03/2012

Start Qty: 1.00

Required Qty: 1.00

D2741

Manufactured No

250

Each

37.0000

1

1

D2741

Blade, 350 Skidtube

**

SP 12-04-09

Location

Loc Qty

Loc Code

ST

-10

ST466

47

71856

1

76984

36

IX

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

QTY -041	QTY -042	QTY -043	QTY -044	PART NUMBER	DESCRIPTION
X				D4168-041	350 SKIDTUBE ASSEMBLY, LH
	X			D4168-042	350 SKIDTUBE ASSEMBLY, RH
		X		D4168-043	350 SKIDTUBE ASSEMBLY, LH
			X	D4168-044	350 SKIDTUBE ASSEMBLY, RH
1	1	1	1	D2739	WEB
8	8	8	8	D2743	SPACER
1	1	1	1	D2744	CAP
8	8	8	8	D2745	BUSHING
1				D3488-041	BLADE FITTING, LH
	1			D3488-042	BLADE FITTING, RH
4	4	4	4	D3490-1	SPACER
4	4			D3490-3	SPACER
		4	4	D3490-5	SPACER
8	8	8	8	D3492-041	PLUG ASSEMBLY
8	8			D3492-043	PLUG ASSEMBLY
		8	8	D3492-045	PLUG ASSEMBLY
8	8	8	8	D3631-1	WASHER
7	7	7	7	D3873-1	BUSHING
1	1	1	1	D4154-041	WEARPLATE ASSEMBLY
1				D4168-1	SKIDTUBE WELDMENT, LH
	1			D4168-2	SKIDTUBE WELDMENT, RH
		1		D4168-3	SKIDTUBE WELDMENT, LH
			1	D4168-4	SKIDTUBE WELDMENT, RH
4	4	4	4	D4170-1	SPACER
1	1	1	1	D4171-1	BUSHING
4	4	4	4	ALS4-1032-225	INSERT
4	4	4	4	AN3C6A	BOLT
1	1	1	1	AN3C34A	BOLT
4	4	4	4	AN3C36A	BOLT
4	4	4	4	AN6C44A	BOLT
1	1	1	1	AN8C35A	BOLT
9	9	9	9	AN960C10	WASHER (OR NAS1149CO363R)
4	4	4	4	AN960C10L	WASHER (OR NAS1149CO332R)
1	1	1	1	AN960C816L	WASHER (OR NAS1149CO832R)
5	5	5	5	MS21043-3	NUT
4	4	4	4	MS21043-5	NUT
1	1	1	1	MS21083C8	NUT
4	4	4	4	NAS1515H3L	WASHER

GENERAL NOTES:

- MATERIAL: MAKE D4168-1/-2/-3/-4 FROM D2600-3 EXTRUSION (INITIAL LENGTH = 120.0).
- FINISH:
CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIOR TO INSTALLING D2739 WEB.
POWDER COAT WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED TO 1.0 ABOVE SKIDTUBE CENTER-LINE PER DART 005 4.4 (OPTIONAL).
- TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- UNITS: INCHES UNLESS OTHERWISE NOTED
- BREAK SHARP EDGES: N/A
- IDENTIFICATION: N/A
- WEIGHT: D4168-041/-042/-043/-044 = 32.3 LBS
- WELD PER DART QSI 004
- FINAL CONFIGURATION SHOULD HAVE THE FOLLOWING MINIMUM MECHANICAL PROPERTIES:
MINIMUM YIELD TENSILE STRENGTH = 35 KSI
MINIMUM ULTIMATE TENSILE STRENGTH = 38 KSI
- COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- SPACER AND PLUG INSTALLED SAME AS SECTION AJ-AJ EXCEPT HORIZONTAL
- SPACER AND PLUG INSTALLED SAME AS SECTION AP-AP EXCEPT HORIZONTAL

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 81401 MLS

12/03/14

RELEASED
2010-09-15

A		NEW ISSUE		DESCRIPTION		SC	10.08.09
REV.		SC				BY	DATE
DESIGN		SC		DART AEROSPACE USA, INC.			
DRAWN		SC		PORT HADLOCK, WA			
CHECKED				DRAWING NO.		REV. A	
MFG. APPR.				D4168		SHEET 1 OF 11	
APPROVED				TITLE		SCALE	
DE APPR.				350 SKIDTUBE ASSEMBLY		NTS	
DATE				10.08.09	<small>COPYRIGHT © 2010 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>		

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

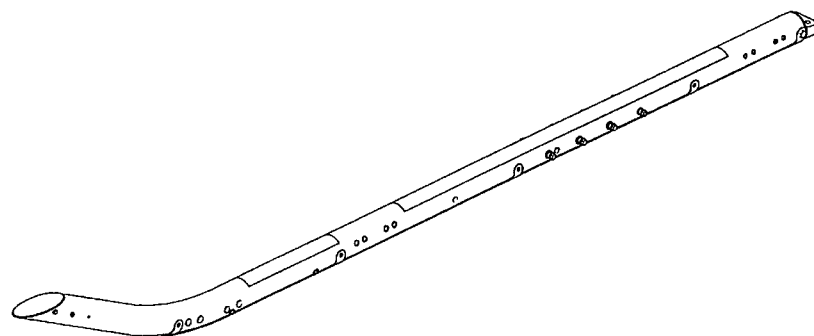
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

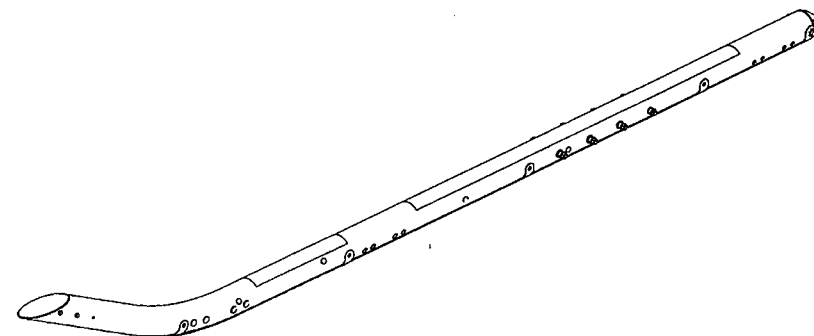
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

81401



D4168-041 350 SKIDTUBE ASSEMBLY, LH



D4168-042 350 SKIDTUBE ASSEMBLY, RH

RELEASED
2010-09-15
JW

DESIGN	SC	DART AEROSPACE USA, INC.	
DRAWN	SC	PORT HADLOCK, WA	
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. A
MFG. APPR.	<i>[Signature]</i>	D4168	SHEET 2 OF 11
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

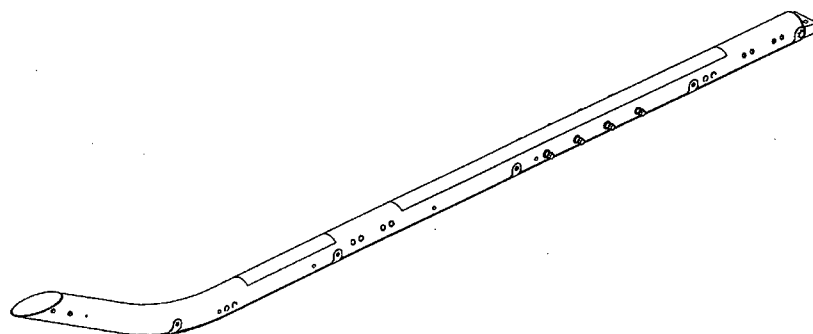
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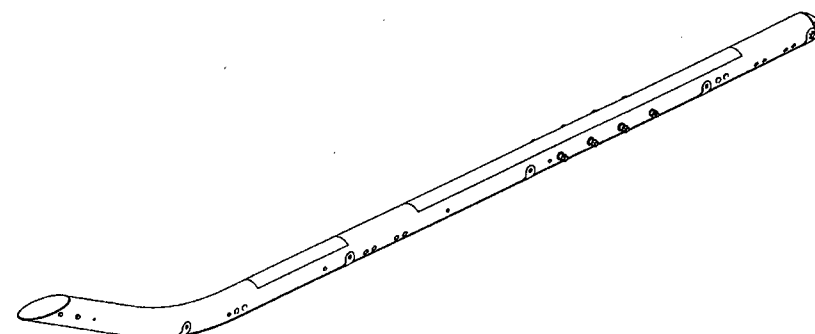
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

81401



D4168-043 350 SKIDTUBE ASSEMBLY, LH



D4168-044 350 SKIDTUBE ASSEMBLY, RH

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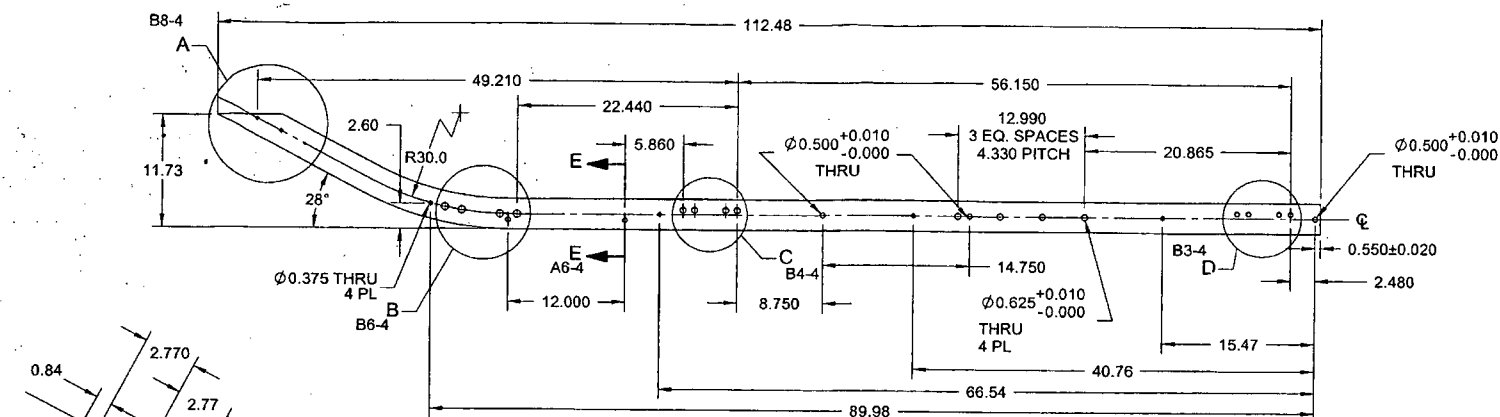
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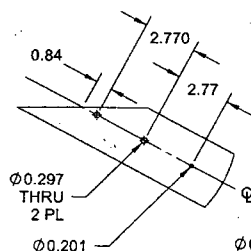
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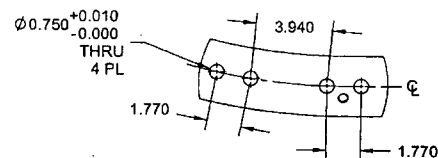
NOTE: Date & initial all entries



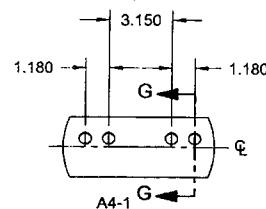
D4168-1 LH SKIDTUBE



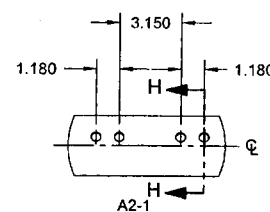
DETAIL A
SCALE 2X



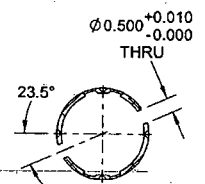
DETAIL B
SCALE 2X



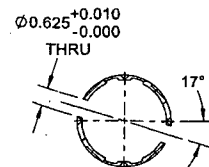
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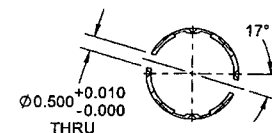
DETAIL D
SCALE 2X



SECTION E-E
SCALE 3X, 2 PL



SECTION G-G
SCALE 3X, 4 PL



SECTION H-H
SCALE 3X, 4 PL

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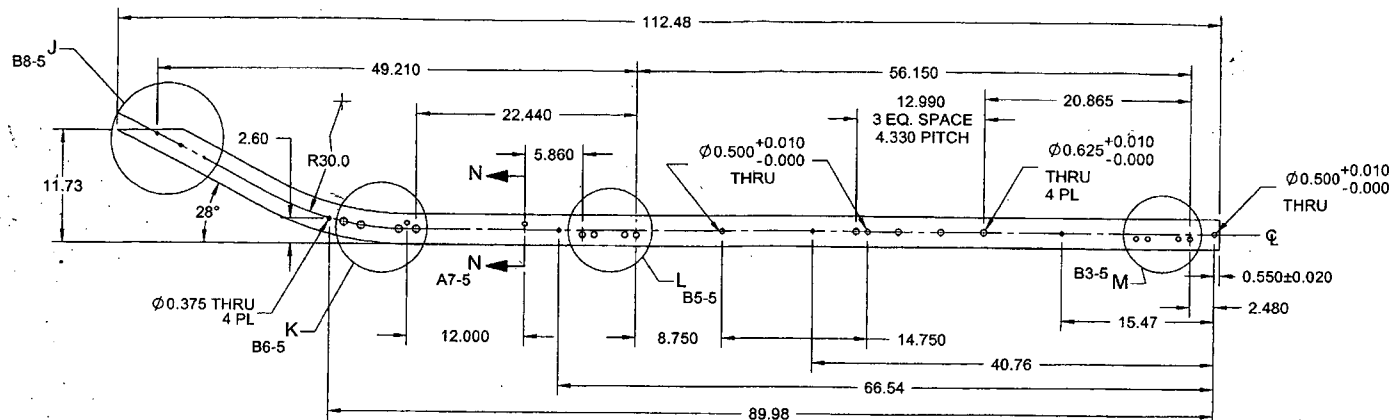
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

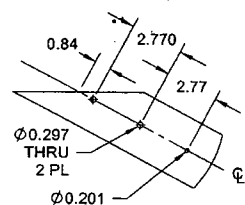
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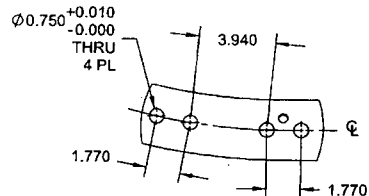


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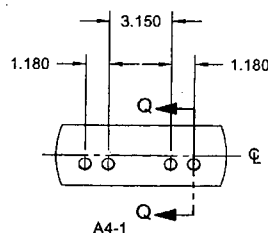
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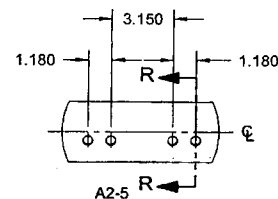
DETAIL J
SCALE 2X



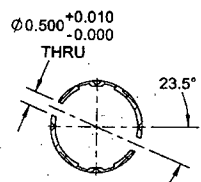
DETAIL K
SCALE 2X



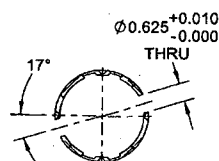
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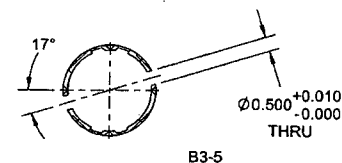
DETAIL M
SCALE 2X



SECTION N-N
SCALE 3X, 2 PL



SECTION Q-Q
SCALE 3X, 4 PL



SECTION R-R
SCALE 3X, 4 PL

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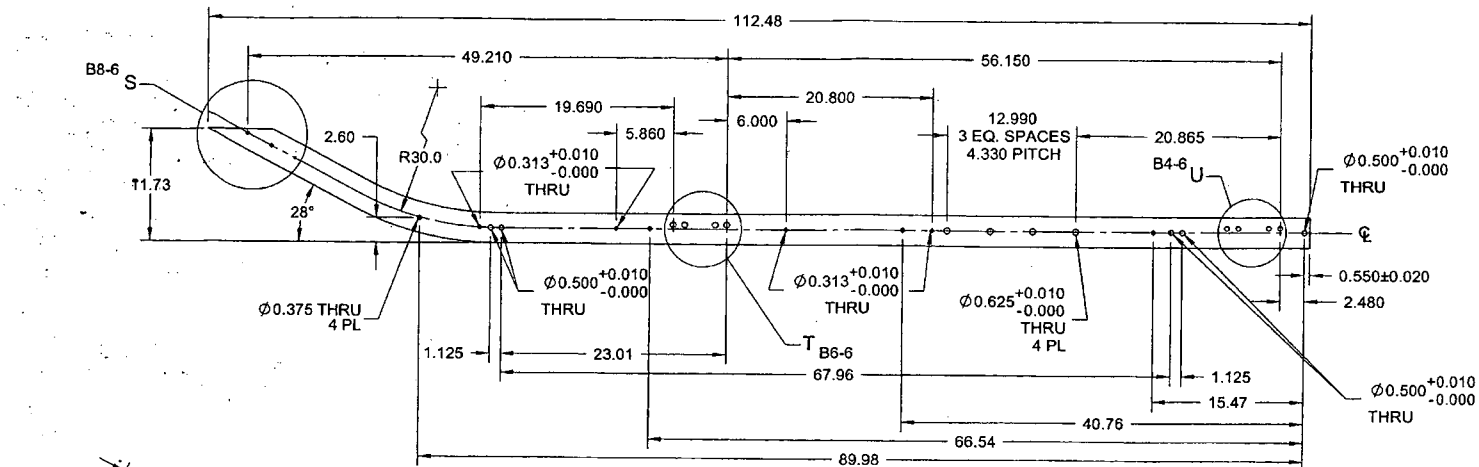
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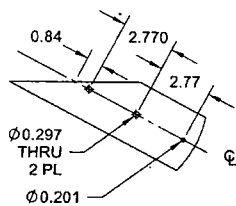
NOTE: Date & initial all entries

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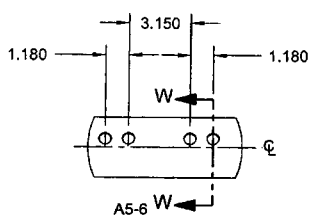
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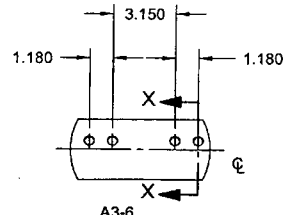
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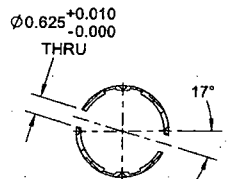
DETAIL S
D8-6
SCALE 2X



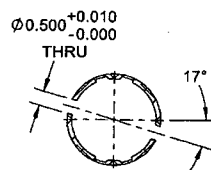
DETAIL T
C5-6
SCALE 2X



DETAIL U
D3-6
SCALE 2X



SECTION W-W
B6-6
SCALE 3X, 4 PL



SECTION X-X
B4-6
SCALE 3X, 4 PL

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8 7 6 5 4 3 2 1

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NOTE: Date & initial all entries

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B

A

8

7

6

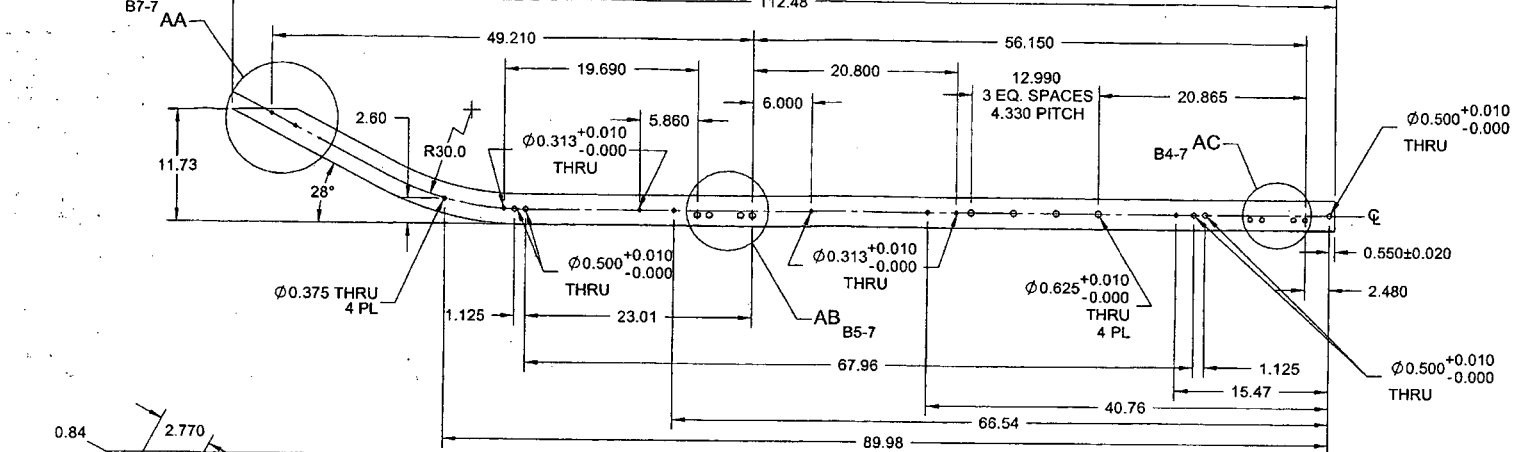
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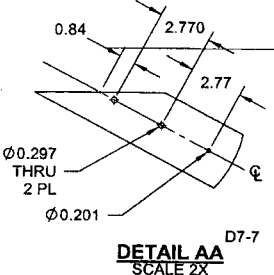
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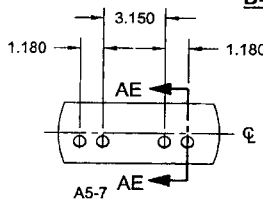
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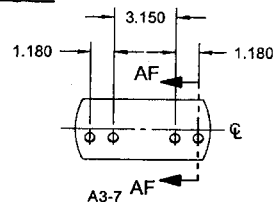
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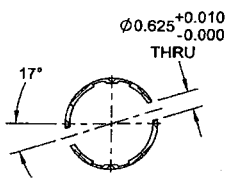
DETAIL AA
SCALE 2X



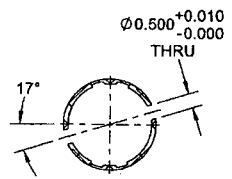
DETAIL AB
SCALE 2X



DETAIL AC
SCALE 2X



SECTION AE-AE
SCALE 3X, 4 PL



SECTION AF-AF
SCALE 3X, 4 PL

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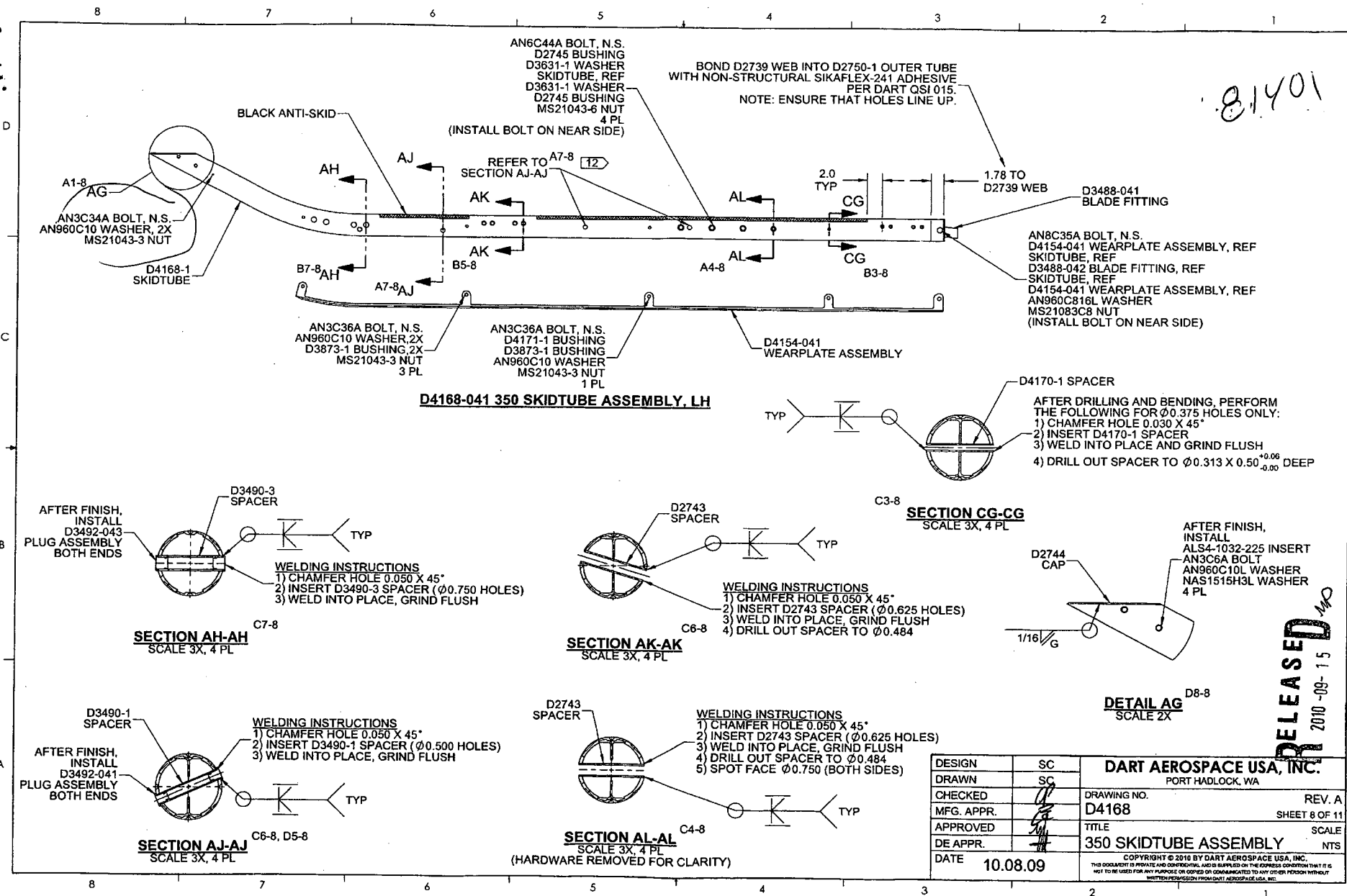
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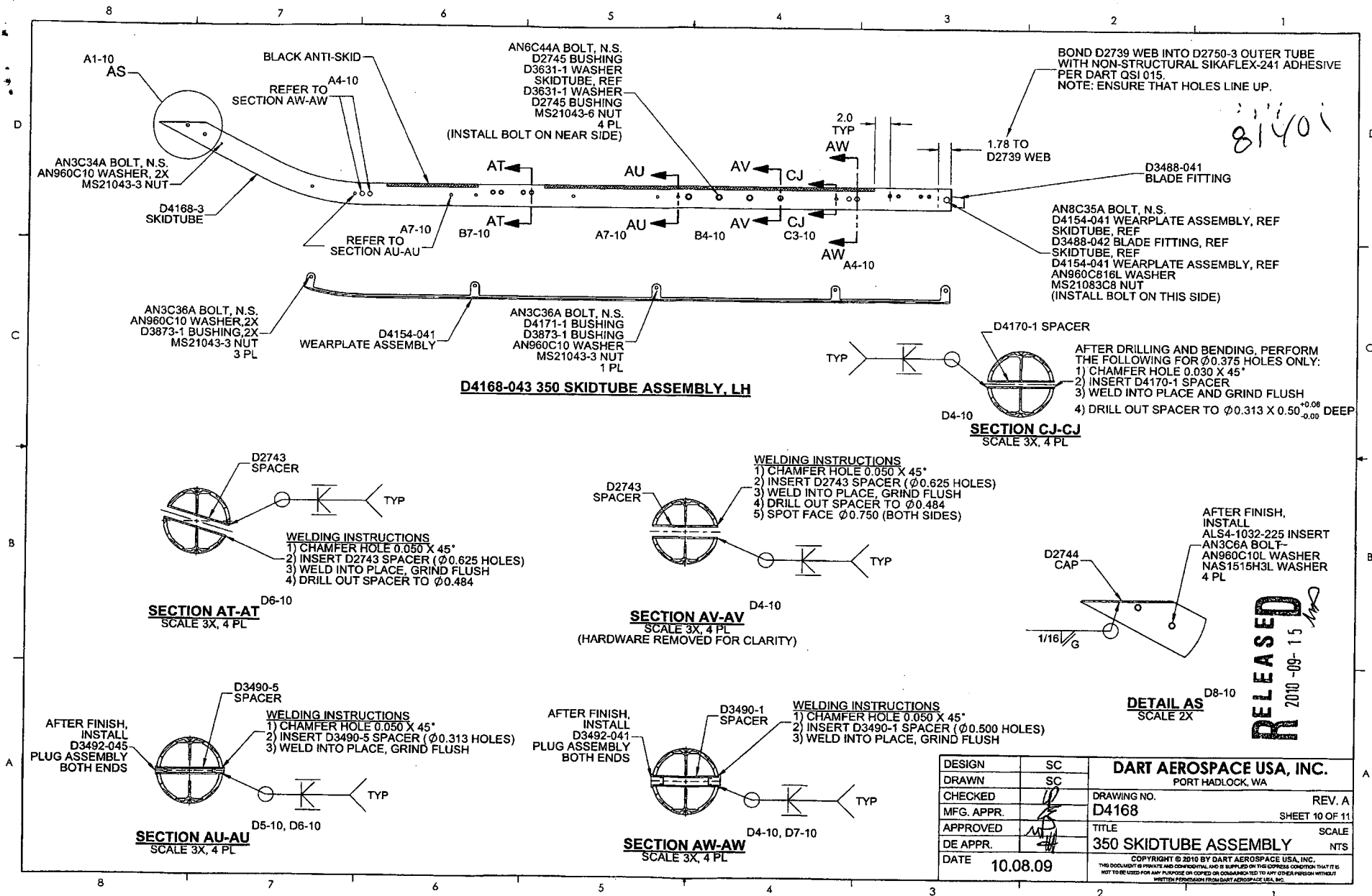
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NOTE: Date & initial all entries

Work Order ID 81401

81401

Page 1

March-14-12 7:48:06 AM

Item ID: D350-636-016

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Skidtube STD w/ Training Wearplates, RH

Start Date: 13/03/2012 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 27/03/2012 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: MLJ Date: 12/03/14 Tooling:

Run Start *NR1*

QC: Date: SPC (Y/N):

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
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D3492	C
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D4168	A
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IIN-D350-636	I
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DOCUMENT CONTROL

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Document Control

Photocopy blue file and type labels per PPP D350-636-016 CHG 002

Handwritten signature

Handwritten signature

Handwritten: OK for CH 12/04/09

B81401 RH

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

NO. 286

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name: Barclay Elliott
Job number: 82189
Part number: A350-606-012
Description: Skid tube
Welding Process: Tig[☒] Mig[]
Base material: Alum
Current: AC[☒] DC[]

TEST REQUIREMENTS AND RESULTS

Visual: pass[☒] fail[]
Penetration: pass[☒] fail[]

UNACCEPTABLE

Cracks: pass[☒] fail[]
Undercut: pass[☒] fail[]
Pin holes: pass[☒] fail[]
Overlap (cold lap): pass[☒] fail[]
Porosity (surface): pass[☒] fail[]
Coloration: pass[☒] fail[]

Qualifier David Lund Date of Test Coupon 12.04.03
Welder Barclay Elliott Date of Test Coupon 12-04-03

The above named individual is qualified in accordance with AWS D17.1.2001 to weld

Shy April 13

81401

Work Order ID 81401

March-14-12 7:48:06 AM

Item ID: D350-636-016

Revision ID:

Item Name: Skidtube STD w/ Training Wearplates. RH

Start Date: 13/03/2012 Start Qty: 1.00

Required Date: 27/03/2012 Req'd Qty: 1.00

Reference:

Approvals: Process Plan:

QC:

Date:

Date:

Tooling:

SPC (Y/N):

Date:

Date:

Setup Start *NS1*

Stop *NS2*

N9000040100

Cust Item ID:

Customer:

Run Start *NR1*

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
110	Skidtubes	0.00							
110		0.00							
Skidtubes	Memo								
Skidtubes	1- Pick D2600-3 Bent								
	2- Deburr FWD and AFT ends, remove bending marks. Scribe batch# inside AFT end per dwg D4168								
	3- Drill pilot holes for blade fitting bolt holes using DT8983. Open to 0.500". deburr, section R-R								
	4- Locate DT8329 off of blade fitting bolt holes and drill pilot holes for blade fitting, section R-R								
	5- Drill fwd step holes using DT9616. Ensure proper positioning. All holes as per dwg D4168 Detail J								
	6- Drill pilot holes as per Dwg D4168 sheet 5 (D4168-2 details). Drill using drill Jig DT8150 & DT8863A for first side only DT8863B for second side (detail K)								
	7- Clecko DT8863B on second side of tube and drill pilot holes for detail K. ***SECOND SIDE***								
	8-Drill most FWD wearplate hole using DT9678 locating of 66.54" hole								
	9-Open up holes of Detail J to 0.297" (total of 2 holes per side) +.201 iplace per side and open holes of detail M section R-R to 0.500" as per dwg D4168								
	10-Weld D2744 Cap as per Dwg D4168 and QSI 004. Fill grooves in bend left from bending as per QSI 004								
	A/R Aluminum Rod batch: <i>M/20104 8E 12/03/24</i>								

chg002.

C2 12104109

12/03/22